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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,241	08/01/2001	Pierte Roo	MP0088	4034
28285	7590	10/06/2005	EXAMINER	
KATTEN MUCHIN ROSENMAN LLP (MARVELL)			YUN, EUGENE	
IP DOCKET			ART UNIT	
1025 THOMAS JEFFERSON STREET, N.W.			PAPER NUMBER	
SUITE 700, EAST LOBBY			2682	
WASHINGTON, DC 20007-5201			DATE MAILED: 10/06/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/920,241

Applicant(s)

ROO, PIERTE

Examiner

Eugene Yun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-72 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 8-13, 16-21, 24-29, 32-37, 40-45, 48-53, 56-61, 64-69 and 72, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dankberg (US 5,596,439) in view of Hardy (US 6,556,677).

Referring to Claim 1, Dankberg teaches a communication circuit for a network transceiver, comprising:

A first sub-circuit having a first input which receives a composite differential signal including first and second differential signal components (see col. 4, lines 20-22 and input from Receiver to Interference Canceller in fig. 5), a second input which receives a differential replica transmission signal (see input from Source Information Signal in fig. 5), and an output which provides a differential receive signal which comprises the composite differential signal minus the differential replica transmission signal (see col. 4, lines 22-26).

Dankberg does not teach a second sub-circuit which produces first and second single-ended replica transmission signals which together substantially comprise a replica of the first differential signal component of the composite differential signal; and

A third sub-circuit, which is coupled to the first and second sub-circuits, and which produces the differential replica transmission signal from the first and second single-ended replica transmission signals.

Hardy teaches a second sub-circuit which produces first and second single-ended replica transmission signals which together substantially comprise a replica of the first differential signal component of the composite differential signal (see col. 4, lines 33-37 and lines 45-49); and

A third sub-circuit, which is coupled to the first and second sub-circuits, and which produces the differential replica transmission signal from the first and second single-ended replica transmission signals (see col. 4, lines 19-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Hardy to said device of Dankberg in order to provide improved echo cancellation.

Claims 9, 17, 25, 33, 41, 49, 57, and 65 have similar limitations as claim 1.

Referring to Claims 2, 10, 18, 26, 34, 42, 50, 58, and 66, Hardy also teaches a fourth sub-circuit which is coupled to the first sub-circuit and which produces a time-shift between the first differential signal component of the composite differential signal and the second differential signal component of the composite differential signal (see col. 2, lines 59-65).

Referring to Claims 3, 11, 19, 27, 35, 43, 51, 59, and 67, Hardy also teaches the fourth sub-circuit comprising a delay circuit which introduces a delay in the first

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differential signal component relative to the second differential signal component (see col. 2, lines 59-65).

Referring to Claims 4, 12, 20, 28, 36, 44, 52, 60, and 68, Dankberg also teaches the third sub-circuit introducing a predetermined delay in the differential replica transmission signal relative to the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced (see col. 4, lines 35-52).

Referring to Claims 5, 13, 21, 29, 37, 45, 53, 61, and 69, Dankberg also teaches the delay introduced by the fourth sub-circuit substantially matching the predetermined delay introduced by the third sub-circuit (see col. 4, lines 35-52).

Referring to Claim 8, 16, 24, 32, 40, 48, 56, 64, and 72, Dankberg also teaches the first sub-circuit as a summer which operates to subtract the differential replica transmission signal from the composite differential signal (see col. 4, lines 22-26).

3. Claims 6, 7, 14, 15, 22, 23, 30, 31, 38, 39, 46, 47, 54, 55, 62, 63, 70, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dankberg and Hardy and further in view of Chatterjee et al. (US 5,898,340).

Referring to Claim 6, the combination of Dankberg and Hardy do not teach the first and second single-ended replica transmission signals as Class B signals. Chatterjee teaches the first and second single-ended replica transmission signals as Class B signals (see col. 1, lines 11-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of

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Chatterjee to the modified device of Dankberg and Hardy in order to better improve power efficiency.

Claims 14, 22, 30, 38, 46, 54, 62, and 70 have similar limitations as claim 6.

Referring to Claim 7, Chatterjee also teaches the differential replica transmission signal produced from the first and second single-ended Class B replica transmission signals with a single operational amplifier (see col. 1, lines 11-25).

Claims 15, 23, 31, 39, 47, 55, 63, and 71 have similar limitations as claim 7.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Yun whose telephone number is (571) 272-7860. The examiner can normally be reached on 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

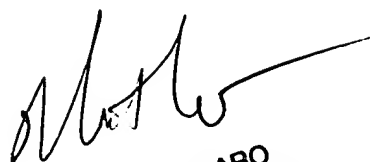
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Eugene Yun

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EY

A handwritten signature in black ink, appearing to read 'Nick Corsaro', with a long horizontal flourish extending to the right.

NICK CORSARO  
PRIMARY EXAMINER

Examiner  
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